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FOREST INSECT INVESTIGATIONS

Annual Report

FOREST INSECT FIELD STATION
Coeur d'Alene Idaho.
1931

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COOPERATIVE CONTROL PROJECTS

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COOPERATIVE CONTROL PROJECTS

Coeur d'Alene Project.

The Coeur d'Alene project, instituted in 1930 against an outbreak of the mountain pine beetle (Dendroctonus monticolae Hopk.) in western white pine, was continued during the past season. During these two years approximately $176,000. were spent for control. Though results secured more than justify the expenditures, the 1931 survey indicates a reinfestation requiring additional treatment in 1932. This condition is largely due to the presence of large numbers of windfalls which have all been lightly attacked, and as heavy broods are produced from such host material, they have been regarded as infested trees requiring treatment. Cooperation has been extended to the Forest Service in the administration and training of personnel, as well as assuming responsibility for necessary surveys and recommendation for control.

Madison Project.

Control measures were instituted on this forest in 1931, and $22,000 were spent in attempting to prevent the southern spread of the severe epidemic of the mountain pine beetle in the lodgepole pine stands of the Beaverhead Forest. Cooperation was extended to the Forest Service in the administration of this operation and a Bureau Officer assigned to the project.

Yellowstone National Park

An outbreak of the mountain pine beetle in the southwest corner of the park was first recorded in 1930. Control measures were instituted in 1931, and approximately $8,000. spent in treating the infested trees. An officer of this station was assigned to the project, who assisted park officers in the training of personnel and administration. Assistance was later given with an insect survey which covered a large portion of the pine forests of the park.

Tongue River Indian Reservation.

Control measures were instituted in 1931 against an outbreak of the Black Hills Beetle (Dendroctonus ponderosae Hopk.) in yellow pine which had been reported and examined in 1930. A Bureau officer assisted Indian Service officials for a period of ten days in the training of necessary personnel, planning and administration of this project. This was a small operation, some $1,300. being spent in reducing a few centers of infestation. Though satisfactory results followed this operation, a subsequent survey shows the presence of a light, scattered infestation on 20 sections requiring treatment in 1932.

Shoshone National Forest.

During the 1931 season a severe outbreak of the Douglas Fir beetle (Dendroctonus pseudotsugae Hopk.) was recorded in the Douglas Fir stands of the Cody Canyon, which during the past few years had been rather heavily defoliated by the spruce budworm.

Control measures were instituted in October and a cleanup of the infested area secured. During this project some 12,000 trees were treated at a cost of only 77¢ per tree. An officer of the Bureau was detailed to this project and assisted forest officers in the training of personnel, planning of work, and spotting of infested trees.

Glacier National Park.

Control measures were again instituted in 1931 against outbreaks of the mountain pine beetle in white pine. These projects have been under the technical direction of the Bureau of Entomology, which has assisted in every possibly way in the planning, training of personnel, examinations, surveys, etc.

Yellowstone National Park
Barkbeetle Control Project.

Control measures were again conducted on the Targhee, Teton, Wyoming, Caribou, and Cache National Forests of Region 4, Madison Forest of Region 1, and the Yellowstone National Park, in connection with this general project. In 1931 a total of $161,000, including the work on the previously mentioned Madison and Yellowstone forests, was spent on this project.

It is regretted that during the past season, the infestation in connection with this project increased to such a magnitude as a result of insect flights from adjacent, infested areas, that the continuation of the operation was considered as being an unsound procedure.

Every possible assistance has been given to Forest officers in charge of these projects by this station relative to examinations, surveys, recommendations, etc. During the past season this station assisted the Targhee National Forest in conducting a survey which was essential for the future planning of this operation.

For the past two seasons an aerial survey of the Yellowstone Park has been conducted by this station for the purpose of locating groups of red topped, lodgepole pine trees, which would indicate the presence of the mountain pine beetle within the area for which protection was especially desired.

ENTOMOLOGICAL INVESTIGATIONS

Practically the entire time of the investigative force of this station has been spent in studies of destructive barkbeetles, due to the economic pressure of the problem. These studies have been directed towards the development of more economical and effective methods of control for these destructive insects. Other suggested leads having been previously exhausted, work relative to actual control measures has been confined to the injection of infested trees with different poisons. In 1930 a large number of infested lodgepole pine trees were treated in this manner. Though an examination that fall indicated discouraging results, subsequent data taken in the spring of 1931, showed that the overwintering broods in trees treated with sodium arsenate, had been destroyed. Following this promising lead, additional lodgepole pine and white pine were treated in 1931, the results of which will be available in 1932. This method of barkbeetle control has its greatest field in the treatment of white pine where, under our present system, the cost per tree is very high.

To determine the effectiveness of burning-standing control as practiced against outbreaks of the mountain pine beetle in lodgepole pine, an investigation was instituted in the spring of 1931 in connection with control work on the Wyoming National Forests. A large number of treated trees were examined and the data secured showed the method as practiced in 1931, where all of the large, tall trees

were felled for treatment, to be effective.

To learn more of the flight habits of barkbeetles so that control projects could be more effectively planned, "Glick" traps were used in connection with an aerial survey of the Yellowstone Park. Plans to use these traps in cooperation with the forest patrol did not materialize due to the severe fire season of 1931. Though a number of insects were taken in these traps at different elevations, no barkbeetles were secured as these flights were made before the new adults had started to emerge from the trees. Weathervane traps were set on lookout peaks on the Coeur d'Alene and Kaniksu National Forests. Adult mountain pine beetles were taken in these traps, showing that they do fly over timberless, mountain tops, apparently following air currents.

Intensive studies were conducted of the mountain pine beetle and the Douglas Fir beetle. The studies were directed toward clarifying confusing points in seasonal histories and habits. The emergence of these two insects from the first tree attacked and successful reattack of a second, was proved for the 1931 season. This dual attack increases the potential danger of emerging broods, and offers an explanation as to the source of some of the unexplainable reinfestations which occur from time to time. Such items as parasites and predators, sex ratio, parthenogenesis, period of time over which the new attacks extend, seasonal histories, habits, etc. received attention during this study.

To secure a better understanding of the spread of mountain

pine beetle epidemics in lodgepole, an extensive survey of the Beaverhead Forest was again conducted during the past season. From this project such information as the rate of spread, severity of the destruction, per cent of stand remaining after the epidemic had passed, length of time such outbreaks last within an area, susceptibility to attack, different age classes, timber types, and exposures, is being secured. Data from this survey show that during the 1931 season there were some 12,000,000 trees attacked.

To develop a satisfactory method of control to protect trees with high aesthetic or commercial values from the spruce budworm, an experimental spraying project was instituted during June 1931 against an outbreak of this insect in the Cody Canyon. Though a number of different sprays were used at different times of the season, the results of these experiments were seriously effected by a marked reduction in the general infestation, which made the measurement of their effectiveness very difficult.

A study of the Oregon Engraver Beetle (Ips oregoni Eich.) which from time to time becomes a serious destroyer of pine reproduction and small trees, was instituted during the past season. The purpose of this study is to determine the factors responsible for the development and cessation of these sporadic outbreaks, as well as the development of more effective control measures than those now in use.

Other studies such as the interrelation of forest fires and subsequent insect outbreaks, logging debris and insect outbreaks, etc., have and will continue to receive attention.